# Moral Licensing at the Top: How CEO Awards Influence Corporate Pollution

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**Abstract**

Moral self-licensing theory posits that individuals who build a positive moral self-image through past good deeds may feel justified in acting less ethically afterward. This theory has been well-documented among individuals through experimental studies, but its application to complex organizations remains underexplored. This study examines the theory in corporate finance context, using CEO reputation - proxied by prestigious awards - as moral credit and firm pollution as a measure of ethical conduct. We find that firms led by award-winning CEOs have significantly higher pollution of around 14 percent following the award. The effect is amplified when CEOs hold greater equity-based pay, suggesting a financial motive, as our data show that higher pollution is linked to stronger financial firm performance. These findings highlight how reputational capital can foster moral self-licensing, showing that CEO moral credit may weaken corporate sustainability.

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# 1. Introduction

Traditional economic theory assumes consistent preferences, yet real-world evidence shows frequent inconsistencies in outcomes. For example, in 2015, Volkswagen was exposed for deliberately manipulating carbon emissions data through defeat devices in diesel vehicles (Hotten, 2015), despite positioning itself earlier as an environmental leader with the fuel-efficient XL1 and early adoption of ISO 14001 standards. Similarly, Nestlé promotes sustainability and ethical sourcing while simultaneously marketing infant formula as superior to breast milk in developing countries (Sethi, 2012). More recently, Boeing emphasized corporate social responsibility (CSR), highlighting commitments to safety, innovation, and sustainability, particularly through fuel-efficient aircraft. However, investigations revealed that the company prioritized speed and cost savings over rigorous safety protocols in the 737 MAX program, contributing to two fatal crashes (Langewiesche, 2019). Whilst these cases cannot be taken as conclusive evidence of a single underlying mechanism, they illustrate the type of contradiction between prosocial positioning and subsequent questionable actions. Psychology research explains such contradictions through the moral self-licensing effect, where prior good deeds generate 'moral credits' that justify subsequent questionable actions. In this process, earlier moral or prosocial behavior increases the likelihood of unethical conduct, as individuals perceive their prior actions as a license to relax moral standards (Monin & Miller, 2001; Merritt et al., 2010).

Early research on moral self-licensing relied on lab experiments to show how an initial moral or ethical act can negatively influence subsequent moral choices. For example, rejecting sexist statements (Monin & Miller, 2001), supporting Obama (Effron et al., 2009), or writing about a minority friend (Bradley-Geist et al., 2010) can provide individuals with a sense of moral credits, enabling them to later express biased views with less concern about appearing prejudiced. People also grant themselves credit for good intentions, even without action: the option to eat something healthy later licenses indulgence now, and the ability to watch an intellectual film in the future licenses choosing a low-brow one today (Khan & Dhar, 2007). More recent research extends this logic to corporate contexts. Chu et al. (2024) show that firms engaging in green technology innovation may reduce other CSR initiatives, particularly when their innovations receive public recognition, consistent with moral self-licensing.

Whereas Chu et al. (2024) show that strong green technology innovation can lead to weaker CSR performance through moral self-licensing, we focus on licensing at the CEO level. This approach allows us to isolate the effect of a CEO's moral license on firm outcomes. We proxy for moral license using prestigious CEO awards, such as those granted by Forbes, Fortune, and Ernst & Young. These are high-visibility events that elevate executive status and signal strong performance to stakeholders (Gallus & Frey, 2016).

Although such awards recognize professional rather than explicitly moral achievements, prior research suggests that exceptional success can enhance a leader's perceived moral standing and entitlement to act with fewer constraints. In this sense, reputation for excellence functions as a form of moral credit, potentially triggering self-licensing behavior. Prior research has linked these awards to changes in firm behavior, including upward shifts in risk-taking (Shi et al., 2017), lower subsequent firm performance (Malmendier & Tate, 2009), increased firm innovation (Pham et al., 2024), and increased financial misconduct (Li et al., 2022). However, their impact on corporate sustainability remains largely unexplored.

In this study, we argue that award-winning CEOs will leverage their elevated status as a license to engage in less socially responsible behavior, leading to reduced corporate sustainability. While Friedman's (1970) separation theorem argues firm's sole responsibility is profit maximization, evolving norms, regulations, and societal expectations no longer permit such a narrow view. Within this domain, we focus on air pollution, quantified as the monetary value of environmental damage. We apply both a fixed effects panel regression difference-in-difference and the staggered difference-in-difference framework of Callaway and Sant'Anna (2021), which accommodates varying treatment timings.

Based on a U.S. only sample spanning from 2005-2022, we find that award-winning CEOs are associated with a significant increase in air pollution, even after controlling for firm size, profitability, and other factors. Using the natural logarithm of total pollution as the dependent variable, our estimates indicate that award-winning CEOs increase pollution by approximately 14 percent relative to matched peers. Event-study results suggest that this effect persists for up to five years post-award. These findings indicate that CEO awards lead to weaker sustainability performance, consistent with moral self-licensing theory in a corporate context.

To further test the moral self-licensing theory, we examine groups that differ in moral standards. Prior studies suggest that individuals with stronger moral standards are less likely to shift from ethical to unethical behavior (Monin and Jordan, 2009; Schaumberg and Wiltermuth, 2014; Zlatev et al., 2020), and that women generally exhibit higher moral self-regard than men (Betz et al., 1989; Mason & Mudrack, 1996). Consistently, we find a weaker moral self-licensing effect among female CEOs.

We explore the financial mechanism underlying this trade-off and find that the effect intensifies when equity-based compensation comprises a larger share of pay, highlighting the role of personal financial incentives in prioritizing profitability over sustainability. Moreover, increases in pollution are positively associated with firm financial performance (Busch et al., 2020), independent of treatment, suggesting that deprioritizing environmental efforts yields short-term gains.

This study contributes to three streams of literature. First, we contribute to research on moral self-licensing (Merritt et al., 2010; Miller & Effron, 2010). Early studies examined moral self-licensing largely through lab experiments, focusing on individuals in isolation. We extend this literature by employing a quasi-(natural) experiment in a corporate context, where moral license is earned in a broader domain by a single decision-maker - the CEO. In doing so, we build on List and Momeni (2021), who show that CSR initiatives can reduce employee effort, by shifting attention from employee behavior to executive decision-making. Our approach complements Li et al. (2022), who link CEO awards to financial misconduct, by applying moral self-licensing theory to environmental outcomes. We also extend Chu et al. (2024), who document that environmental innovation can crowd out other CSR efforts, by moving the analysis to the CEO level and testing whether externally granted moral credentials, in the form of prestigious awards, reduce sustainability performance through increased pollution.

Secondly, this paper contributes to the CSR literature (e.g., Borghesi et al., 2014; Cronqvist & Yu, 2017; Al-Shammari et al., 2019; Hegde & Mishra, 2019) by examining factors that influence decision-making. Specifically, we investigate inconsistencies in CEO decision-making regarding corporate sustainability. Whereas prior research treats corporate environmental performance as driven largely by stable traits, our findings show that sustainability efforts fluctuate over time, reflecting dynamic CEO decision-making influenced by reputational and personal incentives.

Finally, this study contributes to research on the effects of prestigious CEO awards by extending their impact to CSR performance, whereas prior studies primarily focus on financial outcomes or misconduct. For instance, Milbourn (2003) and Malmendier and Tate (2009) highlight how media attention, outside commitments, and perceptions of CEO talent influence managerial behavior, including overconfidence, with implications for firm valuation. Ammann et al. (2016) and David et al. (2023) show that awards and public recognition can shape CEO decision-making, strategic choices, and risk preferences. Our findings provide evidence of the potential negative consequences of prestigious CEO awards on corporate sustainability. The results highlight the importance of maintaining consistent oversight of firms after CEOs receive a prestigious award. Boards, investors, and award organizers can enhance accountability by monitoring post-award environmental outcomes to ensure that recognition aligns with sustained corporate responsibility.

The remainder of the paper is organized as follows. Section 2 reviews the literature and develops our hypotheses. Section 3 outlines the sample and methodology. Section 4 presents the empirical results, and Section 5 concludes.

## 2. Literature Review & Hypotheses Development

This section starts by reviewing consistency theories underlying traditional economic thought, which assume individuals strive to align past and future behavior to maintain a coherent self-image. In contrast, moral self-licensing theory is a inconsistency theory which posits that prior ethical actions can provide 'moral credit,' allowing individuals to act less ethically afterward. We examine this theory in a corporate context, focusing on inconsistencies in corporate sustainability practices, which are both visible and morally salient. Finally, we consider CEO awards as a potential trigger of moral self-licensing, proposing that public recognition may influence subsequent corporate sustainability decisions.

### 2.1 Consistency and inconsistency theories

The desire for consistency in human behavior has long been a central focus in psychology and behavioral research. Cognitive dissonance theory (Festinger, 1957) posits that individuals experience psychological discomfort when beliefs and behaviors conflict, motivating efforts to restore internal coherence. Building on this, the foot-in-the-door technique (Freedman & Fraser, 1966) shows that compliance with a small request increases the likelihood of agreeing to a larger one. This can be explained by the self-perception theory (Bem, 1972) where individuals infer their attitudes from observing their own behavior, interpreting initial compliance as a signal of their values. While these theories emphasize internal motivation, attribution theory adds an external dimension: Miller et al. (1975) found that assigning positive traits or abilities to individuals can shape behavior, as people align their actions with perceived external expectations. Together, these frameworks provide complementary insights into the psychological and social mechanisms that drive behavioral consistency.

Moral self-licensing theory challenges the idea that people always strive for behavioral consistency. Introduced by Monin and Miller (2001), it describes a psychological phenomenon in which past moral or virtuous actions grant individuals 'moral credit,' increasing the likelihood of subsequent behavior that might otherwise be viewed as unethical, biased, or morally questionable. In this view, morality functions more as a resource that can be earned and spent rather than a stable personal trait. Prior good deeds provide justification, allowing individuals to act in ways that contradict earlier moral behavior while preserving a positive self-image (Merritt et al., 2010; Monin & Miller, 2001).

Early research on moral self-licensing primarily used lab experiments to show how initial moral actions can enable later behavior that undermines ethical consistency (Blanken et al., 2015). Engaging in, or intending to engage in, virtuous acts provides individuals

with psychological 'moral credit' that reduces concern about subsequent questionable behavior. In a foundational study, Monin and Miller (2001) show that participants who first established nonsexist credentials by rejecting sexist statements, were later more likely to favor a male candidate over a female one (Study 1). In a separate experiment, participants who established nonprejudiced credentials regarding race were subsequently more willing to express a preference for a White candidate over a Black candidate (Study 2). Together, these findings demonstrate the moral licensing effect. Similarly, Effron, et al. (2009) show that endorsing Barack Obama, framed as supporting racial equality, led participants to later express racially insensitive views with less internal conflict. Bradley-Geist et al. (2010) find that writing about a minority friend increased willingness to support discriminatory hiring. This suggests that moral self-licensing may also arise from associations or recognitions beyond active choice. Moral licensing also affects consumer behavior. For instance, Khan and Dhar (2007) show that even anticipating virtuous choices, such as a healthy meal, licenses indulgence in less virtuous options, like chocolate cake.

Recent research has examined moral self-licensing in organizational contexts. List and Momeni (2021) show that CSR initiatives can inadvertently increase employee misconduct. Chu et al. (2024) find that Chinese firms engaging in green technology innovation often reduce efforts in other CSR areas, such as employee welfare or charitable giving, suggesting that visible moral actions provide 'moral credit' to justify deprioritizing other ethical obligations. We extend this work by focusing on moral self-licensing at the CEO level, using prestigious awards as a concrete moral credential. This approach offers a more direct empirical proxy for the moral-licensing mechanism compared with earlier CSR-based archival studies, as it isolates observable external recognition at the individual level rather than firm-level CSR engagement. Supporting this perspective, Li et al. (2022) show that CEOs are more likely to engage in financial misconduct after receiving awards, consistent with the idea that public recognition can weaken ethical constraints.

At its core, moral self-licensing suggests that prior moral or ethical behavior does not always promote future morality. Paradoxically, it can license individuals to act less ethically. The theory reflects a dynamic process in which people reconcile past virtuous actions with present choices.

### 2.2 Corporate sustainability

In this study, we treat air pollution as a key dimension of corporate sustainability and, more broadly, a measure of a firm's moral behavior. Sustainability offers a salient domain to examine moral self-licensing (Chu et al., 2024). While Friedman's (1970) separation theorem emphasizes profit maximization, current norms and regulations require

firms to address social and environmental responsibilities. Corporate sustainability, also referred to as ESG (Environmental, Social, and Governance), CSR, or green performance, remains an ambiguous concept, with debate over terminology, measurement, and evaluation (Berg et al., 2022; Billio et al., 2021). Because sustainability outcomes are harder to define, measure, and control than financial performance, they rely more on managerial judgment and subjective estimation (Luo & Tang, 2016), making them particularly susceptible to moral self-licensing.

Research increasingly recognizes the complex relationship between CSR and corporate social irresponsibility (CSiR), which refers to actions that harm society, the environment, or stakeholders. Evidence suggests this relationship is ambiguous and context-dependent (Kotchen & Moon, 2012; Ormiston & Wong, 2013; Kang et al., 2016). For instance, Kotchen and Moon (2012) find a positive association between CSR and CSiR but no causal link, while Ormiston and Wong (2013) and Kang et al. (2016) report that CSR does not reliably prevent irresponsible behavior. Adding to this complexity, List and Momeni (2021) show that CSR efforts can unintentionally increase employee misconduct, and Chu et al. (2024) find that firms engaging in green technology innovation often reduce CSR in other domains. Together, these studies suggest that CSR is neither a straightforward indicator of ethical intent nor consistently aligned with positive outcomes.

Given this ambiguity, research has increasingly turned to executive-level factors to explain variation in corporate sustainability. Borghesi et al. (2014) show that CEO traits, such as age, gender, and political affiliation, alongside firm characteristics, significantly shape CSR strategy. Subsequent studies highlight the CEO's central role in influencing corporate sustainability (Al-Shammari et al., 2019; Cronqvist et al., 2019; Cronqvist & Yu, 2017; Hegde & Mishra, 2019). While prior research focuses on stable traits and assumes consistent preferences, our study extends this literature by examining situational factors - the presence of a moral license - that may shift executive priorities and decision-making.

### 2.3 CEO awards

To proxy for the moral license of CEOs, we use prestigious CEO awards. These awards recognize individuals who exemplify the values and objectives of the granting institution and can vary in form, source, and purpose (Frey & Gallus, 2017). They convey appreciation, strengthen institutional ties, provide social and material benefits, and elevate the recipient's status. While some awards are symbolic and others largely monetary, all serve as influential sources of status, conferring intrinsic value on recipients. Media coverage can further amplify their impact (Hayward et al., 2004), making such

awards a potent source of moral licensing.

Competition for CEO status and public recognition is not deliberately structured by shareholders but is largely driven by media influence (Malmendier & Tate, 2009). In recent years, the number of prestigious CEO awards has grown, reflecting both increased public interest in leadership and the addition of more inclusive and international categories. Publications such as Forbes, Fortune, Business Week, and Time recognize executives for strong firm performance attributed to effective leadership. While extensive research has examined the effects of these awards on firm performance and organization behavior (e.g., Milbourn, 2003; Ammann et al., 2016; Gallus & Frey, 2016; Shi et al., 2017), less attention has been given to their impact on non-financial outcomes, such as corporate sustainability.

From a behavioral finance perspective, external recognition shapes CEO behavior through social motivation. Park and Atanassov (2024) find that winning an award can benefit firms by reducing managerial career concerns and promoting long-term productivity, as reflected in increased innovation. David et al. (2023) show that shareholders, particularly mutual funds, are more likely to align with management and oppose shareholder proposals when a CEO has achieved superstar status via a prestigious award. This reduced shareholder opposition effectively expands the CEO's discretion. Pham et al. (2024) report that firms led by media-award-winning CEOs do not exhibit significant differences in innovation compared to predicted winners. They attribute this to heightened scrutiny by financial analysts, which pressures CEOs toward short-term objectives, despite their increased status, stakeholder trust, and access to favorable business deals.

Recognition of past performance may also signal future underperformance, a phenomenon observed across domains as the 'Sports Illustrated jinx,' 'Sophomore jinx,' or 'Nobel Prize disease,' and in business as the 'CEO disease' (Malmendier & Tate, 2009). Researchers offer different explanations for this effect. Li et al. (2022) attribute it to heightened self-worth and psychological entitlement, finding increased financial misconduct following awards. Malmendier and Tate (2009) highlight that prestigious awards can foster overconfidence and divert focus from long-term goals, partly through engagement in non-core activities such as writing books, joining boards, or pursuing hobbies. Overall, the literature suggests that CEO awards can influence corporate behavior in both positive and negative ways.

### 2.4 Hypotheses development

To test moral self-licensing in a corporate setting, we develop measurable hypotheses examining whether a 'moral license,' proxied using prestigious CEO award, promotes consistent or inconsistent corporate sustainability effort. This approach assesses

whether recognition encourages continued prosocial conduct or justifies moral transgressions. Miller and Effron (2010) identify three factors influencing consistency: (1) the degree to which prosocial values are central to identity, (2) whether past behavior is framed as goal progress or goal commitment, and (3) the desire to avoid hypocrisy. In corporations, these consistency pressures are weakened: the principal-agent relationship shields CEOs from personal moral scrutiny, awards signal progress without ensuring commitment, and CEO objectives may misalign with sustainability goals. These factors suggest moral self-licensing likely dominates, permitting greater tolerance for less ethical behavior in subsequent decisions.

Building on the above reasoning that prior achievement can license subsequent misconduct, we hypothesize that firms led by award-winning CEOs will experience a decline in corporate sustainability performance. More specifically, we expect air pollution to increase as CEOs put less emphasis on sustainability after receiving the moral license of a prestigious award, consistent with moral self-licensing theory. Thus, our first hypothesis is as follows.[1]

H1: After receiving a prestigious CEO award, the firm emits more air pollution.

To further examine moral self-licensing at the CEO level, we consider individual perceptions of morality. Research shows that people with higher moral self-regard are less likely to shift from ethical to less ethical behavior (Monin & Jordan, 2009; Schaumberg & Wiltermuth, 2014; Zlatev et al., 2020). Research also shows that women generally exhibit higher moral self-regard than men (Betz et al., 1989; Mason & Mudrack, 1996). Accordingly, female CEOs are expected to be less susceptible to moral self-licensing, maintaining more consistent corporate sustainability. If moral self-licensing drives the decline in sustainability after CEO awards, the effect should be weaker for women. Hence, our second hypothesis:

H2: The impact of a prestigious CEO award on corporate air pollution is moderated by CEO gender, with weaker effect for female CEOs

For the license to translate into behavior, a separate motive, often financial, is required. Psychological research on moral decision-making shows that individuals in emotionally heightened or 'affectively rich' states, such as after receiving public recognition, focus more on desirable outcomes than on ethical constraints (Rottenstreich & Hsee, 2001; Blanken et al., 2015). The emotional boost from an award can make tempting but less ethical choices more attractive, with prior moral behavior or reputational gains providing justification. In a corporate setting, receiving a prestigious CEO award may

[1] In statistical terms, we test the null hypothesis of no change in pollution following the award.

temporarily elevate emotions, increasing the likelihood that executives prioritize financial performance over sustainability. Hence, our third hypothesis is as follows.

H3: The increase in pollution following a prestigious CEO award is financially motivated.

The link between CEO financial motivation and pollution is shaped by compensation structure. Malmendier and Tate (2009) show that equity-based pay can increase rent extraction following prestigious awards. When a larger share of CEO compensation is tied to stock market performance, incentives for short-term financial gains are heightened. Bebchuk and Fried (2003) similarly note that equity-based pay can misalign incentives, prompting executives to favor shareholder value over long-term or stakeholder concerns. CEOs with more market-linked compensation are thus more likely to prioritize financial performance over sustainability.

H3a: After receiving a prestigious CEO award, firms led by CEOs with higher market-linked compensation emit more air pollution.

Maintaining low pollution levels often entails costly operational investments, particularly in pollution-intensive industries (Kock et al., 2012). In contrast, firms can quickly increase emissions through strategic decisions, even without major structural changes (Hayes & Hafstead, 2020). For instance, firms may relax internal environmental standards, delay maintenance on pollution-control equipment, use cheaper polluting inputs, increase production of high-emission goods, reduce sustainability programs, cut environmental compliance staff, or limit purchases of offsets in cap-and-trade systems. Collectively, these actions can significantly raise pollutions while preserving profitability.

If the incentive to pollute is indeed financial, we expect a positive link between air pollution and firm performance independent of treatment. Li et al. (2022) show that award-winning CEOs tend to boost short-term performance, while Busch et al. (2020) find that higher carbon emissions are associated with improved short-term financial outcomes. These findings suggest that after receiving prestigious recognition, CEOs may prioritize financial metrics over sustainability. Since emission-reduction efforts are costly, CEOs seeking higher profitability may allow pollution to rise. Thus, our last hypothesis is as follows:

H3b: Higher air pollution levels are associated with stronger financial performance.

Together, these hypotheses provide a framework for examining how moral self-licensing, recognition, and incentives jointly shape corporate environmental outcomes.

# 3. Data & Methodology

This section describes our data and sample, provides descriptive statistics and model-free analyses of firm, board, and CEO characteristics, and details the treatment and empirical specifications. Our sample comprises U.S.-listed firms from 2005 to 2022. To examine the impact of prestigious CEO awards on corporate sustainability, we integrate multiple databases, elaborated below.

## 3.1 Firm pollution

We obtain our pollution data from the Trucost Environmental datasets provided by S&P Global, a leading source of ESG data widely used in industry and academic research. Trucost, originally established as an independent environmental research company and later acquired by S&P Global, specializes in quantifying companies' environmental impacts across multiple dimensions, including air pollution, water pollution and land pollution. The dataset tracks annual pollutions at the firm level since 2005, providing valuable longitudinal data for analyzing long-term corporate pollution trends.

We employ the variable Air Pollutants-Total (USD mn), which captures the external cost of both direct and indirect air pollutants emitted by a firm. Direct emissions represent pollutants released from company-owned or controlled fossil fuel use and production processes, while indirect emissions account for pollutants generated across the supply chain. The measure encompasses a wide range of pollutants, including carbon dioxide ($CO_2$), sulfur dioxide ($SO_2$), nitrogen oxides ($NO_2$), and heavy metals like mercury. Unlike metrics that report emissions in physical units (e.g., metric tons of $CO_2$), this monetary measure reflects the environmental and social harm caused by pollution based on globally averaged damage costs for each pollutant. By converting emissions into their economic value, the measure accounts for differences in toxicity, health impacts, and social costs, enabling more meaningful comparisons across firms, industries, and time periods.[2] For example, $CO_2$ is priced according to its contribution to climate change, while mercury is valued for its severe impacts on human health and ecological effects. This approach is particularly appropriate for our study because it allows us to integrate environmental impact with firm-level financial data, supporting a direct economic analysis of the trade-offs between corporate sustainability and financial performance. For robustness, we also consider Land & Water Pollutants-Total (USD mn), which similarly

[2]Trucost calculates environmental externalities using an Environmentally Extended Input–Output (EEIO) model which estimates direct and supply chain impacts based on industry-level environmental intensity factors. Pollutant quantities, observed or modeled, are multiplied by marginal damage costs sourced from peer-reviewed literature to monetize impacts such as global warming potential, toxicity, and health effects. For details, *S&P Global Sustainable1 (2023), Environmental Data Methodology Guide (Version 4.2)*.

quantify external environmental costs in monetary terms.

### 3.2 CEO awards

For our treatment variable, we draw on BoardEx database. Consistent with prior studies (e.g., Malmendier & Tate, 2009; Shi et al., 2017; Yin et al., 2024), we focus on prestigious CEO awards. BoardEx documents all CEO achievements, including the awarding institution and date, which allows us to systematically identify award recipients. We selected 12 publications and organizations that conferred CEO awards during our sample period. Our inclusion criteria follow those used by David et al. (2023), Malmendier and Tate (2009), Li et al. (2022), and Yin et al. (2024) for U.S. samples: namely, that "(1) any CEO can potentially win it, and (2) it is prominent enough to plausibly affect CEO status" (Malmendier & Tate, 2009, p. 1599). Within our data, the largest share of awards is from Ernst & Young (32%), Forbes (23%), and Fortune Magazine (20%). The full distribution is reported in Table 1.

The Ernst & Young Entrepreneur of the Year awards, established in 1989, recognize winners based on entrepreneurial spirit, purpose, growth, and impact. Recipients are selected by an independent panel of judges. Our sample contains more awards than years, which is attributable to the inclusion of multiple subcategories in the analysis. The Forbes CEO awards, initiated in 2001, also feature several winners per year across different categories. Examples include the Power Women CEOs List, Most Innovative Leaders, and Powerful CEOs. These awards are determined by the Forbes editorial team. Following, Similarly, Fortune magazine confers a wide range of awards, such as the Most Powerful Women in Business, launched in 1998, and the Businessperson of the Year, which is selected by Fortune's editorial staff.

None of the awards in our sample are conferred specifically for corporate sustainability performance. Instead, we restrict attention to awards based on professional achievements and accomplishments, thereby also excluding those determined solely by income or wealth.[3] This exclusion is guided by the descriptions provided by the award-granting institutions. For instance, we omit the Forbes World's Billionaires List, as inclusion is based on wealth rather than professional performance. After data cleaning, our final sample consists of 239 CEOs who received at least one award during the sample period. Blanken et al. (2015) recommend a minimum of 165 participants per treatment cell to ensure adequate statistical power for detecting moral self-licensing effects. With

[3]A potential critique is that professional accomplishments do not constitute 'moral credit,' especially when CEOs make little contribution to sustainability. Yet investors rarely value CEOs on moral grounds. Figures such as Steve Jobs or Elon Musk, often described as abrasive or difficult, were nevertheless highly regarded and rewarded with extraordinary compensation because of their professional success. This suggests that achievement, rather than virtue, grants CEOs the 'credit' to act with fewer constraints, even when such behavior may be controversial.

239 treated observations and a substantially larger control group, our study satisfies this requirement and is well-positioned to identify meaningful effects. To avoid biases in the pre-treatment period, we focus only on the first award received by each CEO within the sample window, even if some later won additional awards. As a robustness check, we also exclude CEOs who had received an award prior to the sample period. As we will show later, this restriction does not alter our main findings.

### 3.3 Firm fundamentals

We obtain data on firm fundamentals from Compustat and Factset. Consistent with Yin et al. (2024), Li et al. (2022) and Malmendier and Tate (2009), we control for a set of firm- and CEO-level characteristics, including firm size (Total Assets), firm performance (Revenue and Return on Assets), Institutional Ownership, Board Size, Total Compensation (CEO), CEO Duality, CEO Age, CEO Gender, and CEO Tenure. To reduce the influence of outliers, all variables except CEO Duality, CEO Age, CEO Gender, CEO Tenure, and Board Size are winsorized at the 1st and 99th percentiles. We also use the natural logarithm of Total Assets, Revenue, and Total Compensation in the analyses. After combining all datasets, the sample consists of 12,260 firm-year observations, covering 1,405 unique firms and 2,487 unique CEOs.

Table 2 reports the summary statistics for the full sample. Environmental externalities, measured as the monetary value of air, land, and water pollutants, show a skewed distribution with a small number of firms driving large impacts. This is one reason why we use the natural logarithm of the pollution variables. Firm size (log assets and revenue) and profitability (ROA) display substantial variation. Institutional ownership is high on average (86%),[4] while CEO compensation is positively skewed. Governance characteristics indicate that 62% of CEOs also serve as board chair, average board size is 10, and CEO tenure averages 6 years. CEOs in the sample are on average 57 years old, with only 4% female representation.

### 3.4 Model-free analysis

Table 3 reports correlations for the full sample between the two pollution-related dependent variables, the treatment indicator, and all control variables. The results show that treated firms tend to be larger, more profitable, have higher institutional ownership, larger boards, and pay greater CEO compensation. We also find a small but significant positive correlation between CEO gender and treatment, suggesting that female CEOs are slightly overrepresented in the treated sample. This likely reflects the inclusion of

[4]Institutional ownership may exceed 100% in the FactSet data due to double reporting, or securities lending.

awards that specifically target female executives. Finally, the modest negative correlation between CEO age and treatment indicates that award-winning CEOs are, on average, younger. This pattern is likely explained by the presence of awards with age restrictions.

### 3.5 Empirical specification

To empirically assess the effect of prestigious CEO awards on corporate sustainability performance, the ideal experiment would observe the same firm both with and without an award-winning CEO. Since such a direct comparison is infeasible, we must identify a credible proxy for the unobserved counterfactual. A straightforward approach is to compare the average performance of firms led by award-winning CEOs to that of firms with non-award-winning CEOs. However, this approach assumes that award selection is random, a condition not satisfied by our data, as shown in Table 3. As a result, simple comparisons risk selection bias, because award-winning CEOs and their firms are likely to differ systematically from non-recipients in ways unrelated to the awards themselves.

To estimate the treatment effect while accounting for initial selection bias, we use a two, three, and four way fixed effects difference-in-difference (DiD) model (Goodman-Bacon, 2021). Furthermore, we employ the Callaway and Sant'Anna (2021) staggered DiD approach, which is well-suited for settings where treatment occurs at different times across groups. This method first groups firms into cohorts based on the year they receive the treatment and estimates a group-time average treatment effect for each cohort. These cohort-specific effects are then aggregated to obtain an overall average treatment effect. Importantly, the staggered DiD leverages a within-CEO perspective over time, comparing outcomes before and after the CEO receives the award, which allows for a more precise identification of causal effects. We define the treatment at the annual level, as we do not expect an immediate response. Anticipation effects may occur during nomination or selection prior to the award, but the dependent variable - air pollution - cannot change substantially within a short period. To account for this timing, all dependent variables are measured at time t+1 in the fixed effects regressions, capturing the impact of the current year's CEO actions on the following year's environmental performance.

# 4. Results

In this section, we present our main findings from both the panel regression analysis and the staggered DiD approach, examining the impact of CEO moral licensing - via prestigious awards - on air pollution. To further test the moral self-licensing mechanism, we conduct a split-sample analysis based on CEOs' average levels of moral orientation. We then explore a financial mechanism underlying the observed effect. Finally, we provide robustness analyses to validate and reinforce the main results.

## 4.1 CEO reputation and firm pollution

We begin by testing whether firms led by award-winning CEOs increase their pollution following recognition. If moral self-licensing operates in this context, receiving an award should lead CEOs to feel morally justified in relaxing their environmental standards, resulting in higher emissions. We estimate the treatment effect using two-, three-, and four-way fixed effects models:

$$\ln(\text{Pollut}_{i,f,d,t+1}) = \alpha + \beta_1 \text{Treatment}_{i,f,d,t} + \Gamma \cdot \text{Controls}_{i,f,d,t} + \sigma_i + \gamma_f + \tau_d + \delta_t + \varepsilon_{i,f,d,t} \quad (1)$$

Here, $\ln(\text{Pollut}_{i,f,d,t+1})$ denotes the natural logarithm of total air pollution (USD million) in year $t+1$, and $\varepsilon_{i,f,d,t}$ is the error term. $\text{Treatment}_{i,f,d,t}$ is the treatment indicator. We include a vector of control variables ($\text{Controls}_{i,f,d,t}$). Furthermore, let $\delta_t$ denote the year fixed effects, $\sigma_i$ the industry fixed effects, $\gamma_f$ the firm fixed effects, and $\tau_d$ the CEO fixed effects. Note that the variables *Age* and *Gender* are omitted due to the inclusion of CEO fixed effects in the third model.

Table 4 reports the fixed effects regression results. The dependent variable is total air pollution at time t+1. The treatment indicator show that CEOs exhibit higher pollution than comparable non-award firms in the post-award period. The treatment effect becomes significant once firm fixed effects are included, suggesting that unobserved, time-invariant firm characteristics previously masked the relationship. Controlling for these factors isolates within-firm variation, and the effect remains robust when further adding CEO fixed effects, indicating that the result is not driven by persistent differences across firms or CEOs. These results indicate a robust and statistically significant treatment effect of around 14% including all fixed effects, where prestigious awards are associated with increased firm-level emissions. This finding is consistent with the idea that moral licensing enables CEOs to deprioritize environmental performance.

### 4.2 Staggered difference in difference

As Callaway and Sant'Anna (2021) show, a standard two-way fixed effects model may be insufficiently robust in settings with staggered, multiple-period treatments. Therefore, we strengthen our empirical design by employing a staggered DiD analysis. This method estimates the group-time average treatment effect, i.e., the average treatment effect for group g at time t, where groups (or cohorts) are defined by the timing of first treatment. In our case, grouping is done at the CEO level. By construction, the staggered DiD controls for time-invariant characteristics specific to each treatment cohort (i.e., CEOs first treated in the same year) as well as for common time shocks affecting all groups. It also accounts for the staggered adoption of treatment, ensuring that future treated units at a given time provide a valid comparison for treated units, thereby mitigating potential bias from non-random treatment.

The parameter of interest is the Average Treatment Effect on the Treated ($ATT_{g,t}$) for each treated cohort $g$ at each post-treatment period $t$ following the model by Callaway and Sant'Anna (2021):

$$ATT_{g,t} = \mathbb{E}\left[Y_{it} - Y_{it}(0) \mid G_i = g,\, t \geq g\right] \tag{2}$$

where $\mathbb{E}$ is the expectation operator, $Y_{it}$ the observed outcome, $Y_{it}(0)$ the counterfactual outcome, $G_i$ the treatment cohort, and $t \geq g$ is the post-treatment period for group $g$. As such, $ATT_{g,t}$ measures the causal effect of receiving a prestigious CEO award (treatment) on firms' air pollution, where the outcome variable is the natural logarithm of total air pollution, for units first treated in group $g$, relative to the counterfactual of no treatment, in period $t$.

The effect is averaged across all treated units in that cohort at that time. For estimation we also include the following control variables: Industry, Firm Size, Revenue, Institutional Ownership, Total Compensation, Board Size, CEO Duality, Age, Gender, and Tenure.

To validate the parallel trends assumption underlying the staggered DiD design, we conduct a pre-trend test by estimating pseudo-treatment effects for periods before treatment. Specifically, we examine whether there are significant differences in the outcome variable between treated and control groups before the treatment occurs. This involves estimating the average treatment effect on the treated (ATT) for pre-treatment periods and testing whether these estimates are statistically indistinguishable from zero. The results reported in Table 5 Panel C show no significant pre-treatment differences (p-value = 0.135) in the two years before the treatment year, supporting the validity of the parallel trends assumption.

Table 5 reports the average treatment effect. Panel A shows a significant average post-treatment increase of 0.426 (p-value of 0.000), with firms polluting more relative to the expected pollution based on the pre-treatment trend. The estimated coefficient of 0.426 implies that, following a prestigious CEO award, firms' air pollution increases by approximately 53%. In economic terms, this corresponds to an average increase of about USD 17.5 million in annual environmental damage, relative to the sample mean of USD 32.9 million. The effect remains substantial even when evaluated at the median firm (approximately USD 2 million), underscoring the economic magnitude of the post-award increase in pollution.[5] Panel B presents the event-study estimates around the treatment window. The event window spans seven years (from year t-5 to t+5, treatment year inclusive). Consistent with Panel C, the pre-treatment coefficients are not statistically different from zero, again confirming parallel trends.[6] In the second line, we observe that post-treatment, there is a clear increase in air pollution. The first significant effect emerged at t+1, and we observe the treatment effect up to t+5, i.e., five years after the award. Figure 1 presents the corresponding event-study estimates.

### 4.3 Transmission channel

To explore the mechanism behind the effect of moral self-licensing on air pollution, we conduct additional tests as outlined in the hypothesis development section. First, we examine whether the effect differs between male and female 'superstar' CEOs. If moral self-licensing explains the observed increase in pollution, we would expect CEOs with stronger moral standard to be less prone to such behavior (Chu et al., 2024). Prior research suggests that women, including female executives, tend to exhibit stronger ethical standards, implying a weaker moral licensing effect among female CEOs (Betz et al., 1989; Mason & Mudrack, 1996). To test this, we split the treated sample by CEO gender while retaining the full control group, as their gender should not affect pollution outcomes at the treated firm's event time. Because control firms do not experience the license, their CEOs do not experience a moral-licensing trigger at the treated firm's event time. Hence, any inherent gender differences in moral thresholds among control CEOs do not affect the estimated treatment effect, which captures variation only among the treated firms. Empirically, we estimate Equation 1 separately for each subsample. Furthermore, we estimate the following interaction equation.

[5]The ATT from the staggered DiD reflects the average post-treatment difference in pollution levels across all cohorts and years, not a 53% annual or cumulative increase.

[6]The key difference between the previous pre-trend test and the pre-treatment average in Panel B is that the former evaluates whether treated and control groups follow similar trajectories before treatment by testing differences in trends. The latter, on the other hand, simply summarizes the average difference in levels between the groups. As a result, the pre-trend test provides a more robust assessment of the parallel trends assumption.

$$\ln(\text{Pollut}_{i,f,d,t+1}) = \alpha + \beta_1 \text{Treatment}_{i,f,d,t} + \beta_2 \left(\text{Treatment}_{i,f,d,t} \times \text{Gender}_{i,f,d,t}\right) + \Gamma \, \text{Controls}_{i,f,d,t} + \sigma_i + \gamma_f + \tau_d + \delta_t + \varepsilon_{i,f,d,t} \quad (3)$$

where $\text{Gender}_{i,f,d,t}$ indicates a female CEO. Similar to Equation 1, we include a vector of control variables and apply various fixed effects: firm, industry, CEO, and year. Due to the CEO fixed effects, the individual indicator for gender is omitted in the model.

Table 6 presents the results of the gender-split analysis employing Equation 1. Models (1) and (2) report estimates for male and female 'superstar' CEOs, respectively. The findings support our second hypothesis that moral self-licensing primarily drives the increase in air pollution among male CEOs. Specifically, the effect is positive and statistically significant for male CEOs, whereas no significant effect is observed for female CEOs. While this may partly reflect the small number of female CEOs in the sample, the results are consistent with prior evidence suggesting that female executives, who are often associated with higher ethical standards, are less prone to moral self-licensing after receiving awards. Notably, when female 'superstar' CEOs are excluded from the full sample, the estimated effect becomes stronger. Model (3) of Table 6 presents the pooled regression including an interaction term between the treatment indicator and CEO gender as shown in Equation 3. The coefficient on the treatment variable captures the post-award effect for male CEOs, while the interaction term represents the difference in the effect for female CEOs. Consistent with the subsample results, the coefficient on the treatment variable remains positive and significant, indicating that firms led by male award-winning CEOs experience an increase in air pollution following the award. The interaction term between treatment and gender is negative but statistically insignificant. However, the limited number of female award recipients in the sample considerably reduces statistical power, making it difficult to draw firm conclusions about gender differences in moral licensing behavior.

To examine the financial mechanism underlying the moral self-licensing effect, we investigate the relationship between pollution and CEO compensation. Specifically, we test whether CEOs with stronger incentives tied to stock market performance are more likely to prioritize profit maximization and cost reduction. We test this mechanism using a panel regression model that includes an interaction with NonCash. This variable measures the proportion of total CEO compensation delivered in non-cash form, such as stock options, restricted shares, or performance-linked equity. NonCash is defined as the ratio of non-cash to total CEO compensation, so higher values indicate a lower share of cash pay and greater reliance on equity-based incentives. We focus on now cash compensation because data on cash-based pay are more complete and consistent across firms and years.

Low levels of cash compensation are interpreted as a proxy for a pay structure that relies more heavily on equity or other market-linked incentives. When a smaller portion of total pay is fixed in cash salary and bonus, a larger share is linked to firm performance, providing high-powered, market-aligned incentives that may encourage decisions favoring profitability over other considerations, including environmental performance. We estimate the following regression:

$$\begin{aligned}\ln(\text{Pollut}_{i,f,t+1}) = \alpha + \beta_1 \,\text{Treatment}_{i,f,t} + \beta_2 \,\text{NonCash}_{i,f,t} + \beta_3 \,(\text{Treatment}_{i,f,t} \times \text{NonCash}_{i,f,t}) \\ + \Gamma \,\text{Controls}_{i,f,t} + \sigma_i + \gamma_f + \delta_t + \varepsilon_{i,f,t}\end{aligned} \tag{4}$$

where $\text{NonCash}_{i,f,t}$ denotes the percentage of non-cash compensation relative to total compensation for firm $f$. The variable has a mean of 0.784 (SD = 0.194), with values ranging from 0 to 1 and a median of 0.850, indicating a left-skewed distribution concentrated toward higher values.

The results, presented in Table 7, show that the interaction involving NonCash is positive and statistically significant, indicating that CEOs with a higher proportion of market-linked compensation, i.e., lower cash pay, tend to increase air pollution following receipt of a prestigious award. This finding supports the notion that market-sensitive compensation structures incentivize CEOs to focus on earnings and short-term financial performance, potentially at the expense of environmental outcomes.[7] This finding supports Hypothesis 3a, indicating that higher market-sensitive compensation is associated with greater air pollution following the award.

To establish that performance-based pay strengthens the link, we first need to verify that air pollution is positively associated with financial performance. Specifically, we employ Net Income, ROA, and Tobin's Q together to capture different dimensions of firm performance. Tobin's Q measures performance incorporating market expectations of future growth and intangible value, Net Income reflects the firm's overall profitability, and ROA measures how efficiently assets are used to generate earnings. By linking pollution levels to firm financial performance, we can evaluate whether environmentally harmful practice is associated with improved bottom-line results. Reducing air pollution often entails higher production costs, which may involve tightening internal environmental standards, maintaining or upgrading pollution-control equipment, or substituting cleaner but more expensive inputs (Hayes & Hafstead, 2020). In other words, higher air pollution is associated with lower production costs, potentially boosting financial performance.

We test the above prediction by examining the relationship between air pollution

[7] CEO fixed effects are not included in this specification, as there is limited within-CEO variation in the share of cash compensation, leaving insufficient variation to identify the interaction term.

and key indicators of firm financial performance. To do so, we estimate the following model:

$$\begin{aligned} \text{FinPerf}_{i,f,t} = \alpha + \beta \ \ln(\text{Pollut}_{i,f,t}) + \Gamma \, \text{Controls}_{i,f,t} \\ + \sigma_i + \gamma_f + \delta_t + \varepsilon_{i,f,t} \end{aligned} \tag{5}$$

where $\text{FinPerf}_{i,f,t}$ denotes the financial performance of firm $f$. We employ firm, industry, and year fixed effects. Note that this analysis is conducted independently of the treatment. We expect the coefficient $\beta$ on pollution to be positive, reflecting the fact that reducing pollution is costly and higher pollution can enhance financial performance.

The results reported in Table 8 are robust across all three dependent variables. Higher air pollution shows a significant positive relationship with indicators such as Tobin's Q, Net Income, and ROA. A 10% increase in air pollution (equivalent to a 0.1 rise in log pollution) is associated with a 0.03-point increase in Tobin's Q, corresponding to about 1.6% of its standard deviation, a 0.02-point increase in standardized net income, or 1.5% of its standard deviation, and a 0.4 percentage-point increase in ROA, equal to roughly 4.8% of its standard deviation. Although modest in size, these effects indicate that higher pollution levels are consistently linked to small but economically noticeable improvements across multiple dimensions of financial performance. This confirms Hypothesis 3b that lower environmental compliance is associated with stronger financial performance.

In sum, the results from both the fixed effects and staggered DiD analyses reveal a clear shift in behavior following the receipt of a moral license. Specifically, firms show higher levels of air pollution after their CEO receives a prestigious award. This effect is absent or diminished for female CEOs, consistent with the expectation that they operate under a higher moral threshold. For CEOs with compensation structures heavily weighted toward equity-based incentives, the inclination to prioritize financial performance over environmental responsibility becomes stronger, amplifying the trade-off. The observed post-award rise in pollution suggests that some CEOs deprioritize costly environmental measures in favor of improving financial outcomes. This behavioral shift aligns with moral self-licensing theory, which posits that prior recognition provides psychological justification for subsequent actions that serve self-interest at the expense of environmental sustainability.

### 4.4 Robustness tests

To explore whether the moral self-licensing effect depends on industry context, we compare manufacturing and service firms. Manufacturing firms, compared to service

firms, typically operate in pollution-intensive environment where managers regularly face trade-offs between cost efficiency and environmental harm (EPA, 2021). These settings create more opportunities for discretionary decisions that may worsen environmental outcomes, such as postponing investments in cleaner technologies or loosening internal environmental standards. In such contexts, prior moral credits may serve as psychological justification for less stringent environmental practices. Given that pollution is integral to daily operations in manufacturing, we expect moral self-licensing to be most prominent in this sector (Chu et al., 2024). We estimate Equation (1) for a split sample analysis. Also, we estimate a fixed effects model with an interaction term that incorporates a manufacturing dummy. The specification is as follows:

$$\begin{aligned}\ln(\text{Pollut}_{i,f,d,t+1}) = \alpha + \beta_1 \text{Treatment}_{i,f,d,t} + \beta_2(\text{Treatment}_{i,f,d,t} \times \text{Manu}_{i,f,d,t}) \\ + \Gamma\, \text{Controls}_{i,f,d,t} + \sigma_i + \gamma_f + \tau_d + \delta_t + \varepsilon_{i,f,d,t}\end{aligned} \tag{6}$$

where $\text{Manu}_{i,f,d,t}$ indicates a manufacturing firm.[8] Similar to Equation 1, we include a vector of control variables and apply various fixed effects: firm, industry, CEO, and year. Due to the firm fixed effects, the individual indicator for the manufacturing firm is omitted in the model.

The results are reported in Table 9. The split sample in Model (1) and (2) show a similar relative effect between manufacturing and service firms. The interaction term in Model (3) indicates that the firm's industry - manufacturing versus other sectors - does not significantly moderate the treatment effect. However, since we use the natural logarithm of air pollution as the dependent variable, the estimates reflect relative rather than absolute changes. In absolute terms, the difference remains substantial: air pollution ranges from –5.298 to 6.485, with an average of –0.281 for service firms and 2.612 for manufacturing firms. Hence, although the relative post-award increase does not differ significantly across industries, manufacturing firms emit considerably more pollution in absolute terms.

To assess the robustness of the effect of receiving a prestigious CEO award on environmental outcomes, we extend the analysis from air pollution to land & water pollution. Table 10 presents the results from Equation (1), using the natural logarithm of total land & water pollution as the dependent variable. The treatment effect remains positive and statistically and economically significant. To further validate these findings, we also apply

[8]Industries are grouped into goods-producing ("manufacturing") and service-oriented ("service") sectors. Manufacturing includes Energy, Materials, Industrials, Consumer Discretionary, Consumer Staples, Information Technology, and Utilities. Service sectors comprise Health Care, Financials, Communication Services, and Real Estate. Information Technology is classified under manufacturing due to its strong hardware and production components.

the staggered DiD framework to land & water pollution, with results reported in Figure 2 and Appendix Table 1A. Consistent with the earlier analyses, both the fixed effects and staggered DiD results confirm the presence of a moral self-licensing effect, even for these alternative pollution measures. In our sample, reported land and water pollution levels are roughly one-third of air pollution levels in absolute terms, suggesting that these forms of pollution contribute less to firms' overall environmental impact. Nevertheless, the results indicate that moral self-licensing continues to shape corporate environmental behavior.

For our next robustness test, given that our sample spans more than 15 years, we test whether the observed effect is persistent over time or primarily a more recent phenomenon by conducting a split-sample analysis. Specifically, we re-estimate the four way fixed effects model from Equation (1), interacting treatment with a dummy variable being one after the Paris Agreement. Table 11 reports the results for interaction effect. The effect is notably stronger in the later period, suggesting that the moral self-licensing mechanism has intensified since the Paris Agreement. A plausible interpretation, consistent with moral self-licensing theory, is that the heightened societal expectations regarding environmental responsibility in the post-Paris period have increased CEOs' need for a moral license to justify environmentally detrimental actions. Consequently, recognition in the form of awards may provide stronger moral justification for pollution-increasing behavior in recent years.

Next, we address the potential bias from CEOs who received a prestigious award prior to the sample period. Since our analysis includes only the first award, cases where that award falls outside the sample window may introduce measurement error. To test this, we exclude all CEOs whose first award predates the sample and re-estimate Equation (1). As shown in Table 12, the results remain consistent with the baseline.

Furthermore, we examine whether the results are disproportionately driven by any single award-granting institution. Since Ernst & Young, Forbes, Fortune, and Harvard Business Review account for the majority of observations, we run four separate four way fixed effects models, each excluding one of these institutions in each. As shown in Table 13, the results remain robust in size and significance over all models. These results indicate that no single institution drives the main findings.

In all models so far, except for the staggered DiD specifications, the dependent variable is measured at t + 1 to ensure that pollution outcomes reflect the decisions of the current year's CEO. For robustness, we also estimate a contemporaneous specification based on Equation (1), in which pollution is measured in the same year as the CEO's award and all control variables. The results, presented in Table 14, remain statistically significant. Consistent with the staggered DiD findings, the effect appears slightly smaller

in the contemporaneous specification, which is expected given that the impact of the award unfolds gradually over the years following the treatment.

Lastly, we extend the analysis by controlling for firms' ESG performance, as captured by the aggregated ESG score. Although these scores are known to be imperfect measures of actual sustainability performance (e.g., Berg et al., 2022; Billio et al., 2021), they do partially reflect the market's perception of corporate responsibility, particularly in earlier years. In the first model, we include the firm's ESG score as an additional control variable. In the second model, we add a dummy variable indicating whether the CEO's compensation package includes any ESG-related metric. The results, reported in Table 15, show that while the inclusion of ESG-linked compensation has a small negative association with air pollution, the main treatment effect remains robust.

## 5. Conclusion

By applying moral self-licensing theory to the corporate context, this study offers a novel explanation for inconsistencies in sustainability strategies. Using prestigious CEO awards as a form of moral license, we find robust evidence that such recognition is associated with a significant increase in firm-level air pollution of around 14 percent, highlighting a clear deterioration in corporate sustainability performance following an award. Central to this interpretation is the idea that CEOs who receive high-profile recognition gain a sense of moral credit, which in turn permits behavior that is less socially responsible. The reputational gains conferred by such awards, as documented by Malmendier and Tate (2009) and Li et al. (2022), appear to grant CEOs a psychological license to redirect attention from sustainability efforts toward financial outcomes that are more salient to shareholders and the media.

To examine whether moral self-licensing explains inconsistencies in corporate sustainability, we compare male and female CEOs, who differ in moral thresholds. Our results indicate that female superstar CEOs show no post-award increase in pollution. This is consistent with prior research showing that women exhibit higher moral self-regard and greater behavioral consistency, making them less prone to moral self-licensing.

We explore a financial mechanism driving the effect. First, we show that compensation structure reinforces the effect. When a larger share of CEO pay is tied to stock market performance, the pressure to prioritize short-term results intensifies, leading to reduced investment in pollution abatement. Our results show that the effect of prestigious awards on pollution is indeed stronger among CEOs with a higher share of equity-based or market-linked pay. These findings are consistent with those of Malmendier and Tate (2009), who show that award-winning CEOs are more likely to extract rents through

increased equity-based compensation.

Second, we find that increases in emissions are positively associated with improved financial outcomes independent of treatment. This suggests that the motive for deprioritizing environmental efforts is financial. Our findings align with those of Li et al. (2022), who show that award-winning CEOs are more prone to financial misconduct in pursuit of performance gains. We extend this pattern to environmental behavior, showing that similar reputational dynamics may drive cost-saving strategies at the expense of sustainability.

The findings remain robust across industry subsamples, alternative pollution measures, sample restrictions, contemporaneous specifications, and additional ESG controls. Together, these results suggest that prestigious awards, while intended to honor exceptional leadership, can inadvertently undermine sustainability by enabling moral self-licensing and amplifying financial incentives to prioritize profits over environmental responsibility.

This study advances three key research streams. First, it extends moral self-licensing theory from individual settings to the corporate domain by showing that CEOs who receive prestigious awards may subsequently engage in behavior that undermines sustainability performance. This finding highlights how moral credentials earned in one domain can license less ethical decisions in another. Second, it adds to the CSR literature by revealing that corporate sustainability performance is not solely determined by stable CEO traits but also varies dynamically with shifts in personal reputation and recognition. Finally, it broadens the understanding of CEO awards by demonstrating that, beyond their known effects on financial outcomes and risk-taking, such recognition can also have unintended negative environmental consequences.

This study also offers practical implications for corporate governance and monitoring. The findings suggest that even general performance-based CEO awards, intended to recognize leadership or business success, can have unintended effects on the sustainability focus of firms. Boards and ESG committees may, therefore, benefit from maintaining consistent environmental oversight following such recognition, ensuring that heightened reputational status does not translate into reduced attention to sustainability targets. For investors and other stakeholders, monitoring post-award environmental outcomes can provide a more complete picture of firm behavior beyond financial or reputational success. Finally, organizations that grant CEO awards might consider incorporating periodic reviews of broader firm outcomes to encourage balanced and sustained corporate performance.

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# Tables

Table 1: CEO awards per organization.

| | Obs. | % |
|---|---|---|
| Ernst & Young | 77 | 32.22 |
| Forbes | 55 | 23.01 |
| Harvard Business Review | 16 | 6.69 |
| Chief Executive Magazine | 8 | 3.35 |
| Business Week | 5 | 2.09 |
| Fortune | 49 | 20.5 |
| Glassdoor | 7 | 2.93 |
| Time Magazine | 9 | 3.77 |
| Institutional Investor | 4 | 1.67 |
| World Economic Forum | 2 | 0.84 |
| Morningstar | 5 | 2.09 |
| The Business Journal | 2 | 0.84 |
| Total | 239 | 100 |

*Note.* This table presents the distribution of prestigious CEO awards within our sample. We only consider the first award a CEO receives.

Table 2: Summary statistics.

| | Obs | Mean | Std. Dev. | Min | p25 | Median | p75 | Max |
|---|---|---|---|---|---|---|---|---|
| Air Poll Tot W | 12260 | 48.451 | 112.009 | 0.005 | 1.992 | 8.653 | 35.63 | 655.335 |
| LW Poll Tot W | 12260 | 15.554 | 42.57 | 0.002 | 0.496 | 2.104 | 9.052 | 279.899 |
| ln airpoll W | 12260 | 2.121 | 2.048 | -5.298 | 0.689 | 2.158 | 3.573 | 6.485 |
| ln lwpoll W | 12260 | 0.774 | 2.08 | -6.363 | -0.701 | 0.744 | 2.203 | 5.634 |
| Total Assets | 12260 | 8.804 | 1.581 | 3.9 | 7.71 | 8.734 | 9.81 | 12.607 |
| Revenue | 12260 | 8.122 | 1.532 | 1.3 | 7.058 | 8.119 | 9.152 | 11.639 |
| ROA | 12260 | 4.889 | 8.367 | -69.065 | 1.384 | 4.337 | 8.575 | 28.673 |
| Inst Owner | 12260 | 89.919 | 15.35 | 22.076 | 80.904 | 91.309 | 99.442 | 130.289 |
| Total Comp | 12260 | 8.707 | 0.882 | 5.46 | 8.252 | 8.801 | 9.298 | 10.576 |
| CEO Duality | 12260 | 0.651 | 0.477 | 0 | 0 | 1 | 1 | 1 |
| Board Size | 12260 | 10.054 | 2.413 | 1 | 8 | 10 | 12 | 35 |
| Tenure | 12260 | 6.308 | 5.797 | 0 | 2 | 5 | 9 | 49 |
| Age | 12260 | 57.815 | 6.843 | 35 | 53 | 58 | 62 | 90 |
| Gender | 12260 | 0.042 | 0.2 | 0 | 0 | 0 | 0 | 1 |

*Note.* All variables but tenure, age, gender, CEO duality and board size are winsorized at the 1st and 99th percentile. For total assets, total compensation and revenue we take the natural logarithm after winsorizing. *Air Poll Tot* and *LW (land and water) Poll Tot* present the combination of the direct external environmental impacts that a company has on the environment through its own activities and of the indirect environmental impacts of a company resulting from the goods and services that they purchase, in million USD. Trucost applies a monetary value to air pollutant quantities and land and water pollutant quantities, which represents the global average damage of each environmental impact. As the pollution variable exhibits substantial skewness, we use the natural logarithm of the measure in all analyses.

Table 3: Correlations.

| | (1) Treatment | (2) Air Poll Tot | (3) LW Poll Tot | (4) In TA | (5) In Rev | (6) ROA | (7) Inst Own | (8) T Comp | (9) Duality | (10) B Size | (11) Tenure | (12) Age |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) Treatment | 1.000 | | | | | | | | | | | |
| (2) ln Air Poll Tot | 0.214* | 1.000 | | | | | | | | | | |
| (3) ln LW Poll Tot | 0.218* | 0.928* | 1.000 | | | | | | | | | |
| (4) Total Assets | 0.284* | 0.508* | 0.460* | 1.000 | | | | | | | | |
| (5) Revenue | 0.338* | 0.813* | 0.784* | 0.772* | 1.000 | | | | | | | |
| (6) ROA | 0.054* | 0.151* | 0.189* | -0.039* | 0.172* | 1.000 | | | | | | |
| (7) Inst Owner | -0.099* | -0.198* | -0.180* | -0.355* | -0.230* | 0.022 | 1.000 | | | | | |
| (8) Total Comp | 0.224* | 0.467* | 0.457* | 0.506* | 0.580* | 0.103* | -0.033* | 1.000 | | | | |
| (9) CEO Duality | 0.058* | 0.143* | 0.150* | 0.132* | 0.162* | 0.056* | -0.099* | 0.054* | 1.000 | | | |
| (10) Board Size | 0.173* | 0.322* | 0.311* | 0.566* | 0.473* | -0.016 | -0.283* | 0.285* | 0.107* | 1.000 | | |
| (11) Tenure | 0.025* | -0.102* | -0.094* | -0.032* | -0.068* | 0.040* | 0.027* | -0.016 | 0.095* | -0.060* | 1.000 | |
| (12) Age | -0.051* | -0.020 | -0.017 | 0.021 | -0.022 | -0.020 | -0.064* | 0.002 | 0.115* | -0.001 | 0.436* | 1.000 |
| (13) Gender | 0.103* | 0.004 | 0.014 | -0.027* | -0.012 | 0.010 | 0.032* | 0.013 | -0.063* | -0.020 | -0.060* | -0.028* |

*Note.* Treatment presents the firms for which its CEO will receive an award sometime during the sample period. All variables but tenure, age, gender, CEO duality and board size are winsorized at the 1st and 99th percentile. For total assets, total compensation and revenue we take the natural logarithm after winsorizing. *Air Poll Tot* and *LW (land and water) Poll Tot* present the combination of the direct external environmental impacts that a company has on the environment through its own activities and of the indirect environmental impacts of a company resulting from the goods and services that they purchase, in million USD. Trucost applies a monetary value to air pollutant quantities and land and water pollutant quantities, which represents the global average damage of each environmental impact. As the pollution variable exhibits substantial skewness, we use the natural logarithm of the measure in all analyses.

Table 4: Fixed effect regression air pollution.

| | (1)<br>Air Poll Tot | (2)<br>Air Poll Tot | (3)<br>Air Poll Tot |
|---|---|---|---|
| Treatment | -0.042 | 0.105*** | 0.144*** |
| | (0.060) | (0.029) | (0.045) |
| Total Assets | -0.007 | 0.224*** | 0.278*** |
| | (0.030) | (0.071) | (0.073) |
| Revenue | 0.956*** | 0.567*** | 0.447*** |
| | (0.032) | (0.088) | (0.099) |
| ROA | -0.003** | -0.001 | -0.001 |
| | (0.002) | (0.001) | (0.001) |
| Inst Owner | -0.003*** | -0.001** | -0.001* |
| | (0.001) | (0.001) | (0.001) |
| Total Comp | 0.043** | 0.017** | 0.013 |
| | (0.019) | (0.009) | (0.010) |
| CEO Duality | 0.007 | 0.006 | 0.019 |
| | (0.033) | (0.017) | (0.021) |
| Board Size | -0.000 | 0.001 | 0.001 |
| | (0.007) | (0.004) | (0.004) |
| Tenure | 0.002 | 0.001 | 0.005 |
| | (0.003) | (0.002) | (0.006) |
| Age | -0.001 | -0.001 | |
| | (0.003) | (0.001) | |
| Gender | -0.051 | -0.013 | |
| | (0.073) | (0.034) | |
| Year fixed effects | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes |
| Firm fixed effects | No | Yes | Yes |
| CEO fixed effects | No | No | Yes |
| Observations | 10,849 | 10,816 | 10,473 |
| $R^2$ | 0.865 | 0.981 | 0.986 |

*Note.* This table presents results from two-, three-, and four-way fixed effects analyses. All variables but tenure, age, gender, CEO duality and board size are winsorized at the 1st and 99th percentile. For total assets, total compensation and revenue we take the natural logarithm after winsorizing. *Air Poll Tot* presents the combination of the direct external environmental impacts that a company has on the environment through its own activities and the indirect impacts from purchased goods and services (in million USD). Trucost applies a monetary value to pollutant quantities, representing the global average damage of each environmental impact. As the pollution variable exhibits substantial skewness, we use the natural logarithm of the measure in all analyses. The dependent variables are at $t+1$ to capture the effect of today's CEO on next year's performance. Standard errors are clustered on CEO level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 5: Average treatment effect on treated.

| ***Panel A*** | Coef. | Std. Err. | $z$ | $P>\|z\|$ | | [95% Conf. Interval] | |
|---|---|---|---|---|---|---|---|
| Total Air Poll | 0.426 | 0.118 | 3.620 | 0.000 | *** | 0.195 | 0.656 |
| ***Panel B*** | | | | | | | |
| Pre Avg | 0.030 | 0.049 | 0.610 | 0.542 | | -0.066 | 0.125 |
| Post Avg | 0.085 | 0.025 | 3.330 | 0.001 | *** | 0.034 | 0.135 |
| $t-5$ | -0.187 | 0.208 | -0.900 | 0.369 | | -0.594 | 0.220 |
| $t-4$ | -0.118 | 0.143 | -0.500 | 0.614 | | -0.398 | 0.153 |
| $t-3$ | 0.035 | 0.173 | -0.200 | 0.840 | | -0.256 | 0.325 |
| $t-2$ | 0.110 | 0.082 | 1.340 | 0.182 | | -0.051 | 0.272 |
| $t-1$ | 0.166 | 0.085 | 1.970 | 0.049 | * | 0.001 | 0.331 |
| *treatment year* | 0.074 | 0.131 | 0.580 | 0.561 | | -0.183 | 0.331 |
| $t+1$ | 0.582 | 0.215 | 2.700 | 0.008 | *** | 0.153 | 1.011 |
| $t+2$ | 0.324 | 0.213 | 1.520 | 0.128 | | -0.093 | 0.741 |
| $t+3$ | 0.442 | 0.116 | 3.830 | 0.000 | *** | 0.216 | 0.669 |
| $t+4$ | 0.942 | 0.344 | 2.740 | 0.006 | *** | 0.268 | 1.615 |
| $t+5$ | 1.469 | 0.769 | 1.910 | 0.056 | * | -0.038 | 2.976 |
| ***Panel C*** | | | | | | | |
| $\chi^2 = 30.5373$ | | | | $P\ value = 0.1346$ | | | |
| Controls | Yes | | | | | | |
| Year fixed effects | Yes | | | | | | |
| CEO fixed effects | Yes | | | | | | |
| Industry fixed effects | Yes | | | | | | |

*Note.* Results from a staggered difference-in-differences analysis. All variables but tenure, age, gender, CEO duality and board size are winsorized at the 1st and 99th percentiles. For total assets, total compensation and revenue we take the natural logarithm after winsorizing. *Air Poll Tot* is the monetary value of direct and indirect environmental impacts (USD millions). Trucost applies a monetary value to pollutant quantities, representing the global average damage of each environmental impact. Because pollution measures are highly skewed, we use the natural logarithm of the measure in all analyses. The staggered DiD is grouped at the CEO level and uses robust standard errors. Significance stars: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

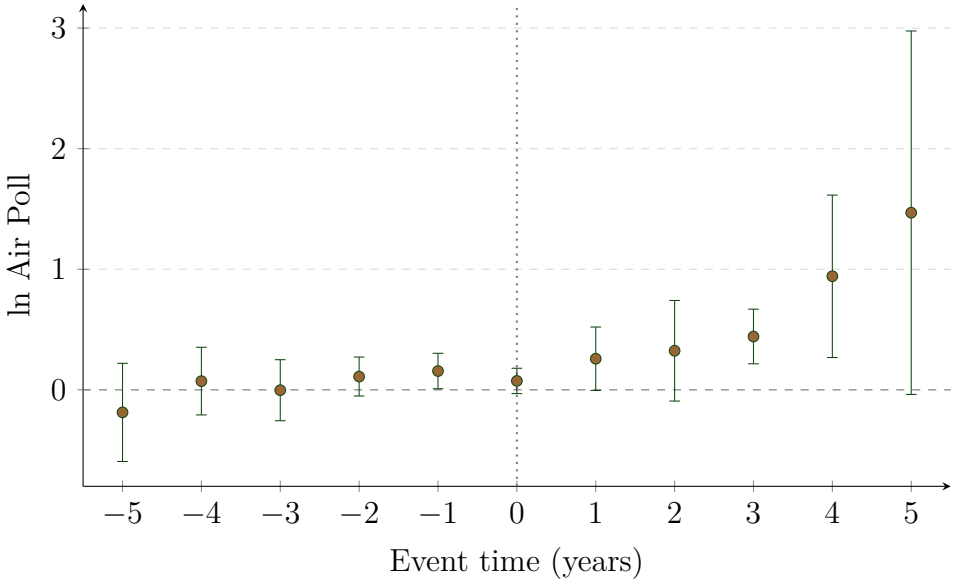


Figure 1: Event-study coefficients (staggered DiD) for air pollution with 95% confidence intervals. The dotted line marks the treatment year ($t = 0$).

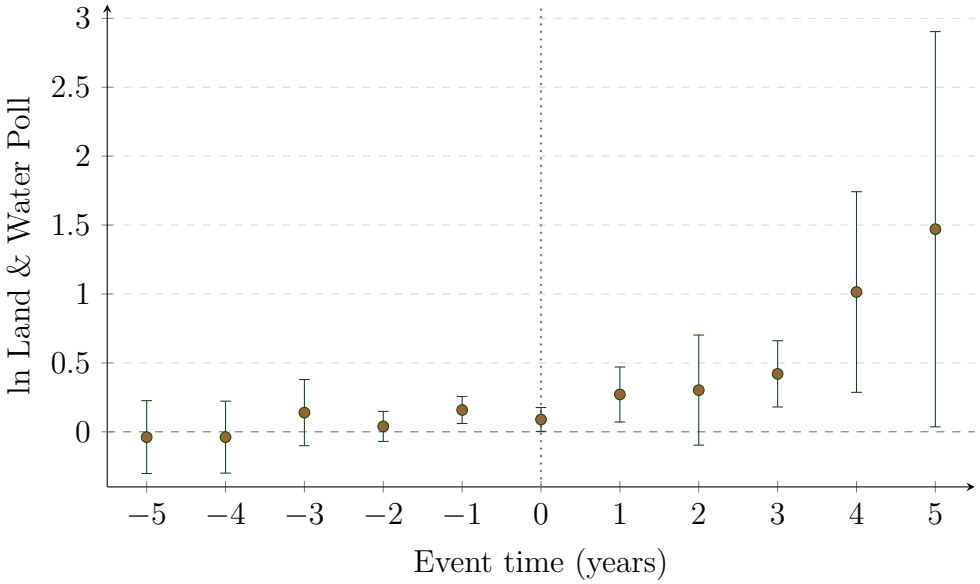


Figure 2: Event-study coefficients (staggered DiD) for land and water pollution with 95% confidence intervals. The dotted line marks the treatment year ($t = 0$).

Table 6: Fixed effect regression gender.

| | (1)<br>Air Poll Tot | (2)<br>Air Poll Tot | (3)<br>Air Poll Tot |
|---|---|---|---|
| | *Female only awards* | *Male only awards* | |
| Treatment | 0.070 | 0.157*** | 0.158*** |
| | (0.085) | (0.050) | (0.073) |
| Treatment × Gender | | | -0.106 |
| | | | (0.096) |
| Total Assets | 0.278*** | 0.278*** | 0.279*** |
| | (0.084) | (0.074) | (0.073) |
| Revenue | 0.411*** | 0.444*** | 0.446*** |
| | (0.115) | (0.100) | (0.099) |
| ROA | -0.002 | -0.001 | -0.001 |
| | (0.001) | (0.001) | (0.001) |
| Inst Owner | -0.001 | -0.001* | -0.001* |
| | (0.001) | (0.001) | (0.001) |
| Total Comp | 0.021* | 0.013 | 0.013 |
| | (0.011) | (0.010) | (0.010) |
| CEO Duality | -0.000 | 0.022 | 0.019 |
| | (0.021) | (0.022) | (0.021) |
| Board Size | 0.002 | 0.001 | 0.001 |
| | (0.005) | (0.004) | (0.004) |
| Tenure | 0.037*** | 0.005 | 0.005 |
| | (0.010) | (0.006) | (0.006) |
| Year fixed effects | Yes | Yes | Yes |
| Firm fixed effects | Yes | Yes | Yes |
| CEO fixed effects | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes |
| Observations | 8,553 | 10,301 | 10,473 |
| $R^2$ | 0.986 | 0.986 | 0.986 |

*Note.* This table presents results from four-way fixed effects analyses for subsamples either including only male or female, superstar CEOs. All variables but tenure, age, gender, CEO duality and board size are winsorized at the 1st and 99th percentile. For total assets, total compensation and revenue we take the natural logarithm after winsorizing. *Air Poll Tot* presents the combination of the direct external environmental impacts that a company has on the environment through its own activities and of the indirect environmental impacts of a company resulting from the goods and services that they purchase in million USD. Trucost applies a monetary value to air pollutant quantities, which represents the global average damage of each environmental impact. As the pollution variable exhibits substantial skewness, we use the natural logarithm of the measure in all analyses. The dependent variables are at $t+1$ to capture the effect of today's CEO on next year's performance. Standard errors are clustered on CEO level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 7: Fixed effect regression air pollution including incentives.

| | (1)<br>*Air Poll Tot* |
|---|---|
| Treatment | -0.052 |
| | (0.064) |
| %non Cash | 0.004 |
| | (0.052) |
| Treatment × %nonCash | 0.145** |
| | (0.079) |
| Total Assets | 0.222*** |
| | (0.071) |
| Revenue | 0.569*** |
| | (0.088) |
| ROA | -0.001 |
| | (0.001) |
| Inst Owner | -0.001** |
| | (0.001) |
| Total Comp | 0.011 |
| | (0.014) |
| CEO Duality | 0.006 |
| | (0.017) |
| Board Size | 0.001 |
| | (0.004) |
| Tenure | 0.001 |
| | (0.002) |
| Age | -0.001 |
| | (0.001) |
| Gender | -0.015 |
| | (0.034) |
| Year fixed effects | Yes |
| Industry fixed effects | Yes |
| Firm fixed effects | Yes |
| Observations | 10,791 |
| $R^2$ | 0.981 |

*Note.* Results from three-way fixed effects analyses including a variable indicating what percentage of total compensation is non cash. All variables but tenure, age, gender, CEO duality and board size are winsorized at the 1st and 99th percentile. For total assets, total compensation and revenue we take the natural logarithm after winsorizing. *Air Poll Tot* presents the combination of the direct external environmental impacts that a company has on the environment through its own activities and of the indirect environmental impacts of a company resulting from the goods and services that they purchase in million USD. Trucost applies a monetary value to air pollutant quantities, which represents the global average damage of each environmental impact. As the pollution variable exhibits substantial skewness, we use the natural logarithm of the measure in all analyses. The dependent variable is at $t+1$ to capture the effect of today's CEO on next year's performance. Standard errors are clustered on CEO level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 8: Regression air pollution and financial performance.

| | (1) *Tobin's Q* | (2) *Net Income* | (3) *ROA* |
|---|---|---|---|
| Air Poll Tot | 0.282*** | 0.239*** | 3.889*** |
| | (0.059) | (0.053) | (0.539) |
| Total Assets | -0.859*** | 0.052 | -3.107*** |
| | (0.103) | (0.069) | (0.477) |
| Inst Owner | -0.004 | -0.001 | 0.034** |
| | (0.002) | (0.002) | (0.014) |
| Total Comp | 0.227*** | 0.252** | 1.132*** |
| | (0.032) | (0.110) | (0.179) |
| CEO Duality | 0.035 | 0.013 | 0.314 |
| | (0.049) | (0.043) | (0.319) |
| Board Size | 0.016 | -0.012 | -0.140** |
| | (0.011) | (0.011) | (0.062) |
| Tenure | 0.011* | -0.006 | 0.040 |
| | (0.006) | (0.006) | (0.031) |
| Age | 0.001 | 0.007* | -0.022 |
| | (0.004) | (0.004) | (0.027) |
| Gender | 0.157 | -0.104 | 0.254 |
| | (0.167) | (0.065) | (0.688) |
| Year fixed effects | Yes | Yes | Yes |
| Firm fixed effects | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes |
| Observations | 11,441 | 12,221 | 12,221 |
| $R^2$ | 0.773 | 0.631 | 0.520 |

*Note.* This table presents results from the OLS regression analyses. All variables but tenure, age, gender, CEO duality and board size are winsorized at the 1st and 99th percentile. For total assets, total compensation and revenue we take the natural logarithm after winsorizing. *Air Poll Tot* presents the combination of the direct external environmental impacts that a company has on the environment through its own activities and of the indirect environmental impacts of a company resulting from the goods and services that they purchase in million USD. Trucost applies a monetary value to air pollutant quantities, which represents the global average damage of each environmental impact. As the pollution variable exhibits substantial skewness, we use the natural logarithm of the measure in all analyses. Standard errors are clustered on CEO level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 9: Fixed effect regression by sector.

| | (1) *Air Poll Tot* | (2) *Air Poll Tot* | (3) *Air Poll Tot* |
|---|---|---|---|
| | *Service* | *Manufacturing* | |
| Post | 0.150** | 0.133** | 0.200*** |
| | (0.068) | (0.054) | (0.063) |
| Post × Manufacturing | | | -0.080 |
| | | | (0.078) |
| Total Assets | 0.360*** | 0.155*** | 0.278*** |
| | (0.103) | (0.037) | (0.073) |
| Revenue | 0.268** | 0.672*** | 0.447*** |
| | (0.129) | (0.041) | (0.099) |
| ROA | -0.002 | -0.001 | -0.001 |
| | (0.003) | (0.001) | (0.001) |
| Inst Owner | -0.001 | -0.001 | -0.001* |
| | (0.001) | (0.001) | (0.001) |
| Total Comp | 0.011 | 0.015 | 0.013 |
| | (0.018) | (0.011) | (0.010) |
| CEO Duality | 0.021 | 0.011 | 0.019 |
| | (0.038) | (0.024) | (0.021) |
| Board Size | -0.001 | 0.002 | 0.001 |
| | (0.006) | (0.005) | (0.004) |
| Tenure | 0.001 | 0.031*** | 0.006 |
| | (0.001) | (0.007) | (0.006) |
| Year fixed effects | Yes | Yes | Yes |
| Firm fixed effects | Yes | Yes | Yes |
| CEO fixed effects | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes |
| Observations | 3,612 | 6,837 | 10,473 |
| $R^2$ | 0.985 | 0.981 | 0.986 |

*Note.* Four-way fixed effects regressions for subsamples by sector (Service vs. Manufacturing). All variables but tenure, age, gender, CEO duality and board size are winsorized at the 1st and 99th percentile. For total assets, total compensation and revenue we take the natural logarithm after winsorizing. *Air Poll Tot* is the monetary value of direct and indirect environmental impacts (USD millions). Trucost applies a monetary value to pollutant quantities, representing the global average damage of each environmental impact. Given substantial skewness, we use the natural logarithm of the pollution measure in all analyses. The dependent variables are at $t+1$ to capture the effect of today's CEO on next year's performance. Standard errors are clustered at the CEO level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 10: Fixed effects regression land and water pollution.

| | (1) *LW Poll Tot* | (2) *LW Poll Tot* |
|---|---|---|
| Treatment | 0.100*** | 0.108*** |
| | (0.028) | (0.036) |
| Total Assets | 0.221*** | 0.270*** |
| | (0.073) | (0.070) |
| Revenue | 0.583*** | 0.456*** |
| | (0.094) | (0.107) |
| ROA | -0.000 | -0.001 |
| | (0.001) | (0.001) |
| Inst Owner | -0.001 | -0.001 |
| | (0.001) | (0.001) |
| Total Comp | 0.016* | 0.007 |
| | (0.009) | (0.010) |
| CEO Duality | 0.006 | 0.019 |
| | (0.019) | (0.022) |
| Board Size | 0.002 | 0.001 |
| | (0.004) | (0.004) |
| Tenure | -0.002 | 0.005 |
| | (0.002) | (0.005) |
| Age | 0.000 | |
| | (0.001) | |
| Gender | -0.045 | |
| | (0.040) | |
| Year fixed effects | Yes | Yes |
| Firm fixed effects | Yes | Yes |
| Industry fixed effects | Yes | Yes |
| CEO fixed effects | No | Yes |
| Observations | 10,816 | 10,473 |
| $R^2$ | 0.982 | 0.987 |

*Note.* This table presents results from three- and four-way fixed effects analyses. All variables but tenure, age, gender, CEO duality, and board size are winsorized at the 1st and 99th percentile. For total assets, total compensation, and revenue, we take the natural logarithm after winsorizing. *Land and Water Poll Tot* represents the combination of the direct external environmental impacts that a company has on the environment through its own activities and of the indirect environmental impacts resulting from the goods and services that they purchase, measured in million USD. Trucost applies a monetary value to land and water pollutant quantities, representing the global average damage of each environmental impact. As the pollution variable exhibits substantial skewness, we use the natural logarithm of the measure in all analyses. The dependent variables are at $t+1$ to capture the effect of today's CEO on next year's performance. Standard errors are clustered on the CEO level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 11: Fixed effects regression post Paris Agreement.

| | (1)<br>*Air Poll Tot* |
|---|---|
| Treatment | 0.071 |
| | (0.045) |
| Treatment × Paris | 0.134*** |
| | (0.047) |
| Total Assets | 0.276*** |
| | (0.073) |
| Revenue | 0.449*** |
| | (0.100) |
| ROA | -0.001 |
| | (0.001) |
| Inst Owner | -0.001* |
| | (0.001) |
| Total Comp | 0.014 |
| | (0.010) |
| CEO Duality | 0.021 |
| | (0.021) |
| Board Size | 0.001 |
| | (0.004) |
| Tenure | 0.005 |
| | (0.005) |
| Year fixed effects | Yes |
| Firm fixed effects | Yes |
| Industry fixed effects | Yes |
| CEO fixed effects | Yes |
| Observations | 10,473 |
| $R^2$ | 0.986 |

*Note.* This table presents results from a four-way fixed effects analysis. All variables but tenure, age, gender, CEO duality and board size are winsorized at the 1st and 99th percentile. For total assets, total compensation and revenue we take the natural logarithm after winsorizing. *Air Poll Tot* represents the combination of the direct external environmental impacts that a company has on the environment through its own activities and of the indirect environmental impacts resulting from the goods and services that they purchase in million USD. Trucost applies a monetary value to air pollutant quantities, representing the global average damage of each environmental impact. As the pollution variable exhibits substantial skewness, we use the natural logarithm of the measure in all analyses. *Paris* presents a dummy variable which is 1 after the Paris Agreement and 0 before. The dependent variable is at $t+1$ to capture the effect of today's CEO on next year's performance. Standard errors are clustered on the CEO level.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 12: Fixed effects regression excluding earlier award.

| | (1)<br>*Air Poll Tot* |
|---|---|
| Treatment | 0.145*** |
| | (0.045) |
| Total Assets | 0.284*** |
| | (0.075) |
| Revenue | 0.441*** |
| | (0.101) |
| ROA | -0.001 |
| | (0.001) |
| Inst Owner | -0.001* |
| | (0.001) |
| Total Comp | 0.013 |
| | (0.010) |
| CEO Duality | 0.020 |
| | (0.022) |
| Board Size | 0.002 |
| | (0.004) |
| Tenure | 0.005 |
| | (0.006) |
| Year fixed effects | Yes |
| Industry fixed effects | Yes |
| CEO fixed effects | Yes |
| Firm fixed effects | Yes |
| Observations | 10,184 |
| $R^2$ | 0.986 |

*Note.* This table presents results from the four-way fixed effects analyses. All variables but tenure, age, gender, CEO duality and board size are winsorized at the 1st and 99th percentile. For total assets, total compensation and revenue we take the natural logarithm after winsorizing. *Air Poll Tot* represents the combination of the direct external environmental impacts that a company has on the environment through its own activities and of the indirect environmental impacts resulting from the goods and services that they purchase in million USD. Trucost applies a monetary value to air pollutant quantities, representing the global average damage of each environmental impact. As the pollution variable exhibits substantial skewness, we use the natural logarithm of the measure in all analyses. *Paris* presents a dummy variable which is 1 after the Paris Agreement and 0 before. The dependent variable is at $t$+1 to capture the effect of today's CEO on next year's performance. Standard errors are clustered on the CEO level.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 13: Fixed effects regression air pollution excluding award institutions.

| | (1) *Air Poll Tot* | (2) *Air Poll Tot* | (3) *Air Poll Tot* | (4) *Air Poll Tot* |
|---|---|---|---|---|
| *Excluding* | *Ernst & Young* | *Forbes* | *Harvard Business Review* | *Fortune* |
| Post | 0.144*** | 0.156*** | 0.136*** | 0.130*** |
| | (0.056) | (0.051) | (0.048) | (0.039) |
| Total Assets | 0.283*** | 0.282*** | 0.278*** | 0.264*** |
| | (0.076) | (0.075) | (0.073) | (0.075) |
| Revenue | 0.448*** | 0.403*** | 0.444*** | 0.443*** |
| | (0.104) | (0.102) | (0.100) | (0.101) |
| ROA | -0.001 | -0.001 | -0.001 | -0.001 |
| | (0.001) | (0.001) | (0.001) | (0.001) |
| Inst Owner | -0.001* | -0.002** | -0.002** | -0.001 |
| | (0.001) | (0.001) | (0.001) | (0.001) |
| Total Comp | 0.012 | 0.010 | 0.013 | 0.015 |
| | (0.010) | (0.010) | (0.010) | (0.010) |
| CEO Duality | 0.019 | 0.019 | 0.020 | 0.021 |
| | (0.022) | (0.021) | (0.022) | (0.022) |
| Board Size | 0.001 | 0.002 | 0.001 | 0.001 |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| Tenure | 0.005 | 0.004*** | 0.005 | 0.004 |
| | (0.006) | (0.010) | (0.006) | (0.005) |
| Year fixed effects | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes |
| Firm fixed effects | Yes | Yes | Yes | Yes |
| CEO fixed effects | Yes | Yes | Yes | Yes |
| Observations | 10,174 | 10,129 | 10,345 | 10,163 |
| $R^2$ | 0.986 | 0.986 | 0.986 | 0.986 |

*Note.* This table presents results from the four-way fixed effects analyses. All variables but tenure, age, gender, CEO duality and board size are winsorized at the 1st and 99th percentile. For total assets, total compensation and revenue we take the natural logarithm after winsorizing. *Air Poll Tot* represents the combination of the direct external environmental impacts that a company has on the environment through its own activities and of the indirect environmental impacts resulting from the goods and services that they purchase in million USD. Trucost applies a monetary value to air pollutant quantities, representing the global average damage of each environmental impact. As the pollution variable exhibits substantial skewness, we use the natural logarithm of the measure in all analyses. *Paris* presents a dummy variable which is 1 after the Paris Agreement and 0 before. The dependent variable is at $t+1$ to capture the effect of today's CEO on next year's performance. Standard errors are clustered on the CEO level.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 14: Fixed effect regression contemporaneously.

| | (1)<br>*Air Poll Tot* |
|---|---|
| Treatment | 0.083** |
| | (0.035) |
| Total Assets | 0.135 |
| | (0.108) |
| Revenue | 0.816*** |
| | (0.150) |
| ROA | 0.000 |
| | (0.002) |
| Inst Owner | -0.001 |
| | (0.001) |
| Total Comp | -0.001 |
| | (0.009) |
| CEO Duality | 0.012 |
| | (0.018) |
| Board Size | 0.000 |
| | (0.004) |
| Tenure | 0.002 |
| | (0.004) |
| Year fixed effects | Yes |
| Industry fixed effects | Yes |
| CEO fixed effects | Yes |
| Firm fixed effects | Yes |
| Observations | 11,900 |
| $R^2$ | 0.990 |

*Note.* This table presents results from four-way fixed effects analyses. All variables but tenure, age, gender, CEO duality and board size are winsorized at the 1st and 99th percentile. For total assets, total compensation and revenue we take the natural logarithm after winsorizing. *Air Poll Tot* represents the combination of the direct external environmental impacts that a company has on the environment through its own activities and of the indirect environmental impacts resulting from the goods and services that they purchase, measured in million USD. Trucost applies a monetary value to pollutant quantities, representing the global average damage of each environmental impact. Given substantial skewness, we use the natural logarithm of the pollution measure in all analyses. The dependent variable is contemporaneous ($t$). Standard errors are clustered on CEO level.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 15: Fixed effect regression ESG controls.

| | (1)<br>*Air Poll Tot* | (2)<br>*Air Poll Tot* |
|---|---|---|
| Treatment | 0.145*** | 0.146*** |
| | (0.045) | (0.045) |
| Total Assets | 0.279*** | 0.279*** |
| | (0.073) | (0.073) |
| Revenue | 0.448*** | 0.445*** |
| | (0.100) | (0.099) |
| ROA | -0.001 | -0.001 |
| | (0.001) | (0.001) |
| Inst Owner | -0.001* | -0.001* |
| | (0.001) | (0.001) |
| Total Comp | 0.013 | 0.014 |
| | (0.010) | (0.010) |
| CEO Duality | 0.017 | 0.017 |
| | (0.022) | (0.021) |
| Board Size | 0.001 | 0.001 |
| | (0.004) | (0.004) |
| Tenure | 0.005 | 0.005 |
| | (0.006) | (0.006) |
| ESG Score | -0.000 | |
| | (0.001) | |
| ESG Compensation | | -0.034* |
| | | (0.018) |
| Year fixed effects | Yes | Yes |
| Industry fixed effects | Yes | Yes |
| Firm fixed effects | Yes | Yes |
| CEO fixed effects | Yes | Yes |
| Observations | 10,454 | 10,462 |
| $R^2$ | 0.986 | 0.986 |

*Note.* This table presents results from two-, three-, and four-way fixed effects analyses. All variables but tenure, age, gender, CEO duality and board size are winsorized at the 1st and 99th percentile. For total assets, total compensation and revenue we take the natural logarithm after winsorizing. *Air Poll Tot* represents the combination of the direct external environmental impacts that a company has on the environment through its own activities and of the indirect environmental impacts resulting from the goods and services that they purchase in million USD. Trucost applies a monetary value to air pollutant quantities, representing the global average damage of each environmental impact. As the pollution variable exhibits substantial skewness, we use the natural logarithm of the measure in all analyses. The dependent variables are at $t$+1 to capture the effect of today's CEO on next year's performance. *ESG Score* represents the Refinitiv ESG Score of the firm, and *ESG Compensation* is a dummy variable equal to 1 if ESG indicators are included in the CEO's compensation package. Standard errors are clustered on the CEO level.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 1A: Average treatment effect on treated land and water pollution.

| ***Panel A*** | Coef. | Std. Err. | $z$ | $P>\|z\|$ | | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|---|
| Total Land and Water Poll | 0.429 | 0.106 | 4.050 | 0.000 | *** | 0.221 | 0.636 |
| ***Panel B*** | | | | | | | |
| Pre Avg | 0.052 | 0.044 | 1.170 | 0.243 | | -0.035 | 0.138 |
| Post Avg | 0.594 | 0.190 | 3.110 | 0.001 | *** | 0.262 | 0.927 |
| $t-5$ | -0.039 | 0.135 | -0.290 | 0.775 | | -0.303 | 0.226 |
| $t-4$ | -0.039 | 0.133 | -0.290 | 0.769 | | -0.300 | 0.222 |
| $t-3$ | 0.139 | 0.123 | 1.130 | 0.257 | | -0.101 | 0.380 |
| $t-2$ | 0.039 | 0.056 | 0.700 | 0.481 | | -0.070 | 0.148 |
| $t-1$ | 0.158 | 0.050 | 3.160 | 0.002 | *** | 0.061 | 0.256 |
| *treatment year* | 0.089 | 0.094 | 0.950 | 0.343 | | -0.096 | 0.276 |
| $t+1$ | 0.271 | 0.102 | 2.660 | 0.008 | *** | 0.071 | 0.470 |
| $t+2$ | 0.302 | 0.203 | 1.490 | 0.136 | | -0.097 | 0.702 |
| $t+3$ | 0.420 | 0.121 | 3.430 | 0.001 | *** | 0.180 | 0.661 |
| $t+4$ | 1.014 | 0.371 | 2.730 | 0.006 | *** | 0.286 | 1.742 |
| $t+5$ | 1.470 | 0.732 | 2.010 | 0.044 | ** | 0.036 | 2.904 |
| ***Panel C*** | | | | | | | |
| $\chi^2 = 32.6797$ | | | $P\ value = 0.0868$ | | | | |
| Controls | Yes | | | | | | |
| Year fixed effects | Yes | | | | | | |
| CEO fixed effects | Yes | | | | | | |
| Industry fixed effects | Yes | | | | | | |

*Note.* Results from a staggered difference-in-differences analysis. All variables but tenure, age, gender, CEO duality and board size are winsorized at the 1st and 99th percentiles. For total assets, total compensation, and revenue we take the natural logarithm after winsorizing. *Land and Water Poll Tot* is the monetary value (USD millions) of direct and indirect environmental impacts. Trucost assigns monetary values to pollutant quantities reflecting the global average damage of each environmental impact. Because the pollution measures are highly skewed, we use the natural logarithm of the measure in all analyses. Controls include total assets, revenue, institutional ownership, total compensation, CEO duality, board size, and tenure. The staggered DiD is grouped at the CEO level and uses robust standard errors. Significance stars: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.